UNITED STATES DISTRICT COURT DISTRICT OF MASSACHUSETTS

SINGULAR COMPUTING LLC, Civil Action No. 1:19-cv-12551-FDS

Plaintiff,

v.

GOOGLE LLC,

Defendant.

Hon. F. Dennis Saylor IV

REDACTED VERSION

PLAINTIFF'S OPPOSITION TO GOOGLE'S MOTION TO EXCLUDE CERTAIN EXPERT TESTIMONY OF DR. SUNIL KHATRI, PH.D.

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Plaintiff, Singular Computing LLC ("Singular"), respectfully submits this Memorandum in Opposition to Google's Motion to Exclude Certain Expert Testimony of Sunil Khatri, Ph.D.

I. INTRODUCTION

Google's *Daubert* motion does not dispute Dr. Khatri's expertise as a scientist, and instead seeks to disqualify his opinions under a hodgepodge of legal theories. Some of Google's theories fail because they are based on laws that do not exist, like Google's baseless argument that the PTAB decisions last year somehow narrowed the scope and value of the Asserted Claims (when in fact the PTAB decisions affirmed their validity). Some of Google's theories fail because they are based on demonstrably false or misleading factual claims, such as Google's allegation that Dr. Khatri did not know or apply the relevant legal standard for apportionment. Still more of Google's theories fail because of Google's unwillingness to accept the Court's claim constructions and its cavalier disregard for this litigation in general.

But for one reason or another, they all fail. Accordingly, Singular asks that the Court deny Google's motion to exclude Dr. Khatri's testimony.

II. LEGAL STANDARD

Federal Rule of Evidence 702 allows admission of "scientific, technical, or other specialized knowledge" by a qualified expert if it will "help the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702(a). An expert witness may present opinion testimony to a factfinder if: (1) "the testimony is based on sufficient facts or data"; (2) "the testimony is the product of reliable principles and methods"; and (3) "the expert reliably

¹ A copy of Dr. Khatri's full report, including his curriculum vitae, is attached as Exhibit A to the accompanying Declaration of Brian M. Seeve ("Seeve Decl."). All exhibit references are to those attached to the Seeve Decl.

applied the principles and methods to the facts of the case." *Id.* at Rule 702 (b)-(d); *see also Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 589 (1993).

While the court acts as "gatekeeper" when applying Rule 702 to determine the admissibility of expert testimony, it must be careful not to act as a fact finder. U.S. v. Sandoval-Mendoza, 472 F.3d 645, 654 (9th Cir. 2006) ("Under *Daubert*, the district judge is 'a gatekeeper, not a fact finder.""). As the Federal Circuit has explained, in patent cases, it is "particularly essential" for the district court to limit its gatekeeping function to "excluding testimony based on unreliable principles and methods" and to take care "not to overstep its gatekeeping role [by] weigh[ing] facts, evaluat[ing] the correctness of conclusions, impos[ing] its own preferred methodology, or judg[ing] credibility, including the credibility of one expert over another." Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1314 (Fed. Cir. 2014). "[W]here the methodology is reasonable and its data or evidence are sufficiently tied to the facts of the case, the gatekeeping role of the court is satisfied, and the inquiry on the correctness of the methodology and of the results produced thereunder belongs to the factfinder." Summit 6, LLC v. Samsung Elecs. Co., 802 F.3d 1283, 1296 (Fed. Cir. 2015). Where an expert meets the threshold established by Rule 702 and explained in *Daubert*, the court must allow the expert to testify and leave it to the jury to determine the weight to give to his testimony. Daubert, 509 U.S. at 596 ("[V]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking" an expert's testimony.)

III. ARGUMENT

A. Google's attempt to unilaterally revise the Court's Markman Order should not be permitted

Google's argument that Dr. Khatri's opinions are based on an improper construction of "processing element" is entirely without merit, as explained below.

1. The Court's constructions of "execution unit" and "processing element"

Google alleges that the Court did not construe "PE" and that it should receive its plain and ordinary meaning, but this is not true. *See* Google Br. at 3. The term "processing element" (or "PE") does not appear in the text of the Asserted Claims, but is included in the Court's construction of the term "execution unit." *See* Dkt. 354 at 25 ("The Court will therefore adopt Singular's proposed construction of 'execution unit' to mean 'processing element comprising an arithmetic circuit paired with a memory circuit."").

The Court's *Markman* order explains that the term "processing element" is broader than "execution unit":

Based on the treatise cited by Google, it appears that very simple functions can be performed by an arithmetic logic unit without access to a memory circuit, and that the term "processing element" might be fairly used to describe a device that performs such simple functions. But in light of the sophistication of the operations at issue, and the description set out in the specification, there is no apparent reason why a person of ordinary skill in the art would interpret the term "execution unit" in the patent as comprising devices without access to a memory circuit.

Dkt. 354 at 25. Thus, the Court has construed "processing element" to be a device with an arithmetic logic unit, but not necessarily a memory circuit; an "execution unit," by contrast, requires both an arithmetic circuit *and* a memory circuit.

2. Google decides to replace the Court's construction of "processing element" with its own

Google, via its expert, Dr. Walker, provided a replacement construction of "processing element" that directly contradicts the Court's construction of this term. While Google insists that its new construction of "processing element" merely reflects the "plain and ordinary meaning" of the term, it is in fact motivated entirely by Google's desire to avoid infringement, as described below.

In his rebuttal report, Dr. Walker declared that
and that they cannot comprise
Ex. B (Walker Rpt.) ¶¶ 222, 226. Further, Dr. Walker
asserts that all PEs (directly
contradicting the Court's construction of "processing element," as explained above). <i>Id.</i> ¶ 225.
To support his new construction of "processing element," Dr. Walker cites: (a) a single
"exemplary embodiment" described in the specification; (b) Dr. Khatri's argument that Singular's
S1 product embodies the claims; and (c) the fact that Google's internal documents do not use the
term "processing element" to describe the accused circuitry. See Id. ¶¶ 214-227.

In its brief, Google inaccurately describes Dr. Walker's self-serving, hindsight-based construction of "processing element" as "the term's undisputed plain and ordinary meaning." Google Br. at 1. In particular, Google points out that "Dr. Khatri did not dispute Dr. Walker's opinions," but fails to mention that Dr. Khatri's report was served in December 2022, while Dr. Walker's rebuttal report was not served until March 2023, nearly three months later. *Id.* at 3. Google could have asked Dr. Khatri about Dr. Walker's construction at his deposition, but declined to do so.

3. Google attempts to exclude Dr. Khatri's opinions

Now, Google brazenly asks the Court to exclude Dr. Khatri's opinions because they are inconsistent with Dr. Walker's self-serving construction of "processing element," and rely instead on an "improper" claim construction (*i.e.*, the Court's construction).

Even stranger, Google admits that Dr. Khatri's report does not include any claim construction arguments relating to "processing element." Indeed, Dr. Walker states that "Dr. Khatri never *uses* the term 'processing element'." Ex. A (Walker Rpt.) ¶ 214 (emphasis added).

Instead, to justify excluding Dr. Khatri's entire infringement report, Google points to testimony from Dr. Khatri's deposition, when Google's counsel asked Dr. Khatri to construe the term "processing element" on the fly. Even then, Dr. Khatri did not offer a construction of "processing element," but he did testify that the meaning of the term was "evident" from the specification. Google Br. at 5. According to Google, the fact that the specification might inform Dr. Khatri's understanding of the term "processing element" is so egregious that it renders all of his infringement opinions "improper for consideration by the jury."²

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² As explained above, Dr. Walker's purportedly "undisputed" construction of "processing element" is also based on the patent specification. Google does not attempt to explain this apparent contradiction.

It is not at all improper to interpret claim language in light of the specification. *See Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001) ("The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose"). It is, however, improper to limit the claims based on a preferred embodiment, as Dr. Walker does. *See*, *e.g.*, *Kara Tech. Inc. v. Stamps.com Inc.*, 582 F.3d 1341, 1348 (Fed. Cir. 2009) ("The patentee is entitled to the full scope of his claims, and we will not limit him to his preferred embodiment or import a limitation from the specification into the claims."). The fact that Dr. Walker based his claim construction on cherrypicked sections of another expert's report and on documents relating to the accused products is, of course, improper as well.

Singular requests that the Court deny Google's motion to exclude Dr. Khatri's testimony, and also asks the Court to explicitly reject Dr. Walker's improper construction of the term "processing element" and to exclude any opinions based thereon.

B. Dr. Khatri's apportionment analysis is proper

Dr. Khatri's apportionment analysis is based on the correct legal standards and the proper scope of the asserted claims. Google's request to exclude this analysis should be rejected. As described more fully in Singular's Opposition to Google's Motion to Exclude Certain Opinion Testimony of Philip Green, Mr. Green utilized the long accepted cost savings methodology to properly isolate the benefits of the patents-in-suit by comparing the accused products to the next best non-infringing alternative on a chip-to-chip basis. *See, e.g., Prism Techs. LLC v. Sprint Spectrum L.P.*, 849 F. 3d 1360, 1376 (Fed. Cir. 2017).

As part of his opinions, Mr. Green relied on Dr. Khatri to further apportion between patented and unpatented features as required by the Federal Circuit. *Ericsson, Inc. v. D-Link Sys.*,

Inc., 773 F. 3d 1201, 1226 (Fed. Cir. 2014). Mr. Green's opinions on apportionment – and the analysis of Dr. Khatri upon which it relies – followed well-established Federal Circuit precedent. *Ericsson, Inc.*, 773 F. 3d at 1226 ("a jury must ultimately 'apportion the defendant's profits and patentee's damages between the patented feature and the unpatented features' using 'reliable and tangible' evidence") (internal citations omitted). Thus, Dr. Khatri's apportionment opinions are properly questions for cross examination, not admissibility. *Id*.

Google does not – and cannot – take issue with the substance of Dr. Khatri's analysis. Instead, Google argues that Dr. Khatri's analysis should be excluded based on: (1) a bogus legal theory of apportionment that has no basis in law; (2) the false claim that Dr. Khatri's report did not explain the apportionment standard; and (3) the unsupported argument that it is improper for

Dr. Khatri to cite Google's own

1. Google's theory that the IPR decisions narrowed the scope of the Asserted Claims is not supported by any law

Several of Google's arguments are based on the notion that the outcome of the IPR proceedings "limits the scope of the asserted claims." Google Br. at 11. Specifically, Google posits that when a claim is invalidated in an IPR, each limitation of that claim becomes "conventional" and is *de facto* removed from every other patent claim that contains the same limitation. Google pretends that this is a well-accepted legal principle, but it fails to identify even one case in which invalidating one claim affected the scope of another.

On the contrary, the validity of one claim does not affect the validity of other claims:

A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid <u>independently of the validity of other claims</u>; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim.

35 U.S.C. §282(a) (emphasis added). Google's argument that invalidating one claim "limits the scope" of others would be inconsistent with this fundamental statutory principle of patent law.

In the same vein, Google argues that apportionment requires separating "patentable" from "unpatentable features of the claimed invention." Google Br., p. 10. To support this theory, Google relies on *Omega Patents*, *LLC v. CalAmp Corp.*, but *Omega Patents* is about using apportionment to exclude unpatented "features of the accused product" — not "unpatentable features of the claimed invention" as Google incorrectly argues. *Omega Patents*, *LLC v. CalAmp Corp.*, 13 F.4th 1361, 1377 (Fed. Cir. 2021); see also Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1226 (Fed. Cir. 2014) (holding that an apportionment analysis must consider "only the value of the infringing features of an accused product"); see also MLC Intell. Prop., LLC v. Micron Tech., Inc., 10 F.4th 1358, 1373 (Fed. Cir. 2021) ("We have repeatedly held that when the accused technology does not

make up the whole <u>of the accused product</u>, apportionment is required."). In all of these cases, apportionment is used to separate the feature of an <u>accused product</u> that is covered by the entirety of a patent claim from the unpatented features of the <u>accused product</u>. None of these cases supports Google's argument that apportionment involves dividing <u>the asserted claim</u> into "patented" and "unpatented" elements.

Google's argument ignores the fact that many valuable inventions are novel combinations of conventional components. For example, concrete is made from a mixture of gravel, water, and cement. Concrete was undoubtedly an incredibly valuable invention, and would eventually become one of the most widely used building materials in the world. However, under Google's theory of apportionment, a patent directed to concrete would have been worthless. All three of its constituent ingredients – gravel, water, and cement – are conventional, and after apportioning the value of these claim elements away, nothing would remain.

Google argues that Dr. Khatri applied the wrong legal standard because "Dr. Khatri admittedly failed to separate *unpatentable* features of the claimed invention from the only novel, *patentable* feature that remains in the asserted claims." Google Br. at 10 (emphasis added). But as explained above, apportionment involves separating the feature of an *accused product* that is covered by the entirety of a patent claim from those features that are not, which is exactly what Dr. Khatri did. *See* Ex. A (Khatri Rpt.) at ¶ 283-84. Thus, it is Google, not Dr. Khatri, that employed the wrong legal standard.

Further, even under Google's incorrect interpretation of the law of apportionment, Dr. Khatri's apportionment analysis would still be proper. If, as Google suggests, a single LPHDR EU were "conventional" and should not be included in the apportionment of the royalty rate, it would not change Dr. Khatri's conclusions for the simple reason that the accused TPU products do not

Rather, the accused TPU products each contain satisfy the "exceeds" limitation of the asserted claims. Because Google acknowledges that the "exceeds" limitation was "not found in the prior art considered by the PTAB" (Google Br. at 16), the value added to the Accused Products by these LPHDR execution units would properly be included in the royalty base, even under Google's incorrect apportionment theory.

2. Google falsely claims that Dr. Khatri did not know or apply the relevant legal standards

Google falsely claims that "Dr. Khatri's report does not include any legal standard for apportionment." In fact, Dr. Khatri very clearly explains how he undertook his apportionment analysis:

B. Apportionment

I understand that to determine the appropriate amount of damages owed in cases such as this, it is also necessary to determine the proportion of the technical value of the Accused Products (as compared to their respective closest non-infringing alternatives) that is due to the claimed invention, vs. the proportion of the value of the Accused Products (as compared to their respective closest non-infringing alternatives) that can be attributed to unpatented features of the Accused Products.

To do this, one must identify the differences between the TPUv2 and TPUv3 and their closest non-infringing alternatives (e.g., and estimate what percentage of the added value (compared to the total added value) of the Accused Products is specifically attributable to the claimed invention.

Ex. A (Khatri Rpt.) ¶¶ 283-284. Google is aware of these paragraphs (*see* Ex. C (Khatri Tr.) 282:15-7) and Dr. Khatri explained to Google's counsel in deposition that paragraphs 283-284 describe the process he used to perform the apportionment analysis (*see* Ex. C (Khatri Tr.) 290:24-291:9). Yet Google chooses to deny that these paragraphs exist, falsely claiming that Dr. Khatri did not include any legal standard for apportionment in his report.

3. Dr. Khatri's analysis is based on a chip-to-chip comparison between the claimed invention and its closest non-infringing alternatives

Dr. Knatri's apportionment analysis is supported by a wide variety of relevant documents,
including Google's own internal
See e.g., Ex. A (Khatri Rpt.) ¶¶ 273, 308, 320. Dr. Khatri
explains how he was able to use this data to determine the incremental value of the claimed
invention over its closest non-infringing alternatives. See, e.g., id. ¶¶ 273-4, 309-312, 321-322.
Google argues that Dr. Khatri's analysis fails to isolate the patented feature because it is
based on a "system-to-system (system-level) comparison," and not a "chip level" comparison.
Google Br. at 9. However, as explained above, Dr. Khatri's analysis is based on data that directly
compares the See Id. ¶ 273 (citing a table
titled "Chip Level Comparison"). Because computer chips cannot operate outside a computer, it is
necessary to measure the performance of working computer systems that use TPU chips and
, respectively, in order to effectively compare the chips themselves. See Id. \P 275.
These data, however,
See id.
Google's argument also appears to be based on the false premise that the IPR decisions
somehow narrowed the scope of the Asserted Claims or their incremental value. This argument
fails for the reasons explained in §III.B.1, supra.
C. Dr. Khatri's opinions regarding "commercial success" are proper and should not be excluded
Google claims that Dr. Khatri does not provide any evidence of commercial success, but

this is also untrue. Dr. Khatri cites a Google

Ex. A (Khatri Rpt.) ¶ 253.

Google further argues that Dr. Khatri lacks the expertise to know whether the accused TPU devices are commercially successful. But one does not have to be an economist to understand that an invention is a "commercial success" if it is used by one of the largest companies in the world that Dr. Khatri reviewed and cited in his report.

Finally, Google insists (again) that the IPR decisions have narrowed the scope of the claim to cover only the "exceeds" limitation, and that Dr. Khatri must show a nexus between the commercial success of the TPU devices and the "exceeds" limitation in particular. This argument fails for the reasons explained in §III.B.1, *supra*.

D. Dr. Khatri's opinions about communications between Google scientists and engineers are proper

Google argues that Dr. Khatri's opinions about the design choices made by the engineers in charge of the TPU project constitute improper testimony regarding Google's "state of mind."

Indeed, many of the secondary considerations of non-obviousness involve states of mind (*e.g.*, skepticism, praise, copying), and Google's argument would categorically prevent Dr. Khatri from forming or offering any opinions on these topics.

IV. CONCLUSION

For the reasons given above, Singular respectfully asks that the Court deny Google's motion to exclude the expert testimony of Dr. Khatri.

REQUEST FOR ORAL ARGUMENT

Pursuant to Local Rule 7.1(d), Singular requests the Court to entertain oral argument on this motion, as Singular believes such will assist the Court in resolving the motion.

Dated: May 19, 2023 Respectfully submitted,

/s/ Kevin Gannon

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system.

/s/ Kevin Gannon